

Operation and Maintenance User Manual
Models 400, 800, 1800, 3000

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INDEX **PAGE**

SAFETY INFORMATION

Bolttech Mannings has designed this tool to be safe, ergonomic, and functional.

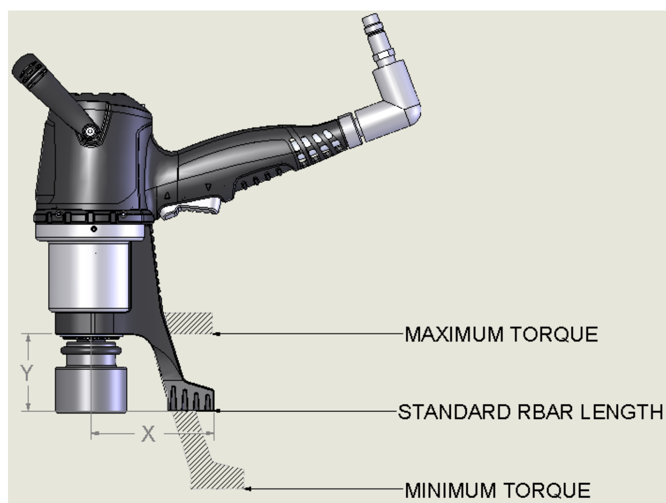
- Use of proper protective safety gear such as protective clothing, gloves, and safety glasses is recommended while using this tool.
- **FAILURE TO FOLLOW THESE RECOMMENDATIONS COULD RESULT IN SERIOUS BODILY INJURY.**
- The reaction arm will turn until it hits a stationary reaction point, typically an adjacent nut or housing structure. The reaction arm must be secure and stationary**.**
- **KEEP ALL HANDS, FEET, AND CLOTHING AWAY FROM THE REACTION ARM – SERIOUS CRUSHING INJURIES CAN OCCUR.**
- This tool should only be used with impact sockets.

Introduction

- It is important to follow all guidelines laid out in this manual. Failure to do so can result in injury, voiding the warranty, and damage to the tool and or surrounding equipment.
- Each tool is accompanied by a certified calibration report. Refer to the report to determine the air pressure setting for the required torque.
- Due to variances in things such as compressed air supplies, joint characteristics and other application related variables, deviations from the calibration report may occur.
- Any modification to the reaction arm can affect torque output.

The reaction arm supplied with the tool is designed to fit most industrial applications: ANSI B16.5, API, DIN, and British Flanges. Your tool can be fitted with a custom reaction arm for specific applications; however deviations from the standard reaction arm will affect torque output.

Increasing dimension X will result in minimal torque deviation from the torque certificate supplied with the tool. This is shown in the cross hatched Area 1. Decreasing dimension X will result in minimal deviation from the torque certificate, however it will increase the amount of side-load exerted on the tool which can result in premature failure of the output drive.



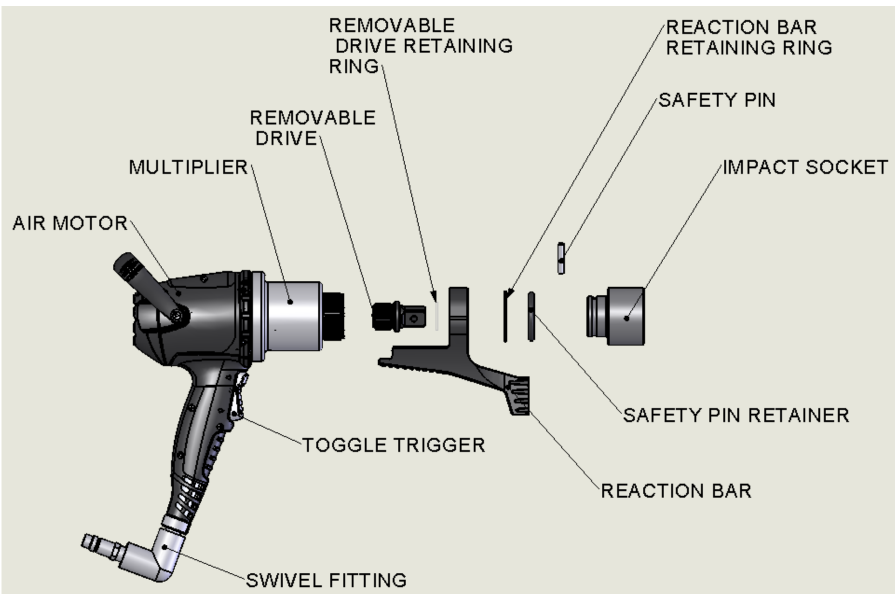
Increasing dimension Y will result in a decrease in torque from the torque certification supplied with the tool. This is shown in the cross hatched Area 2. Decreasing dimension Y will result in an increase in torque from the torque certification supplied with the tool.

Where it is necessary to use an extension drive between the output square drive of the tool and the socket, you must provide a balanced reaction. A double sided reaction arm with both sides taking equal load serves this purpose.

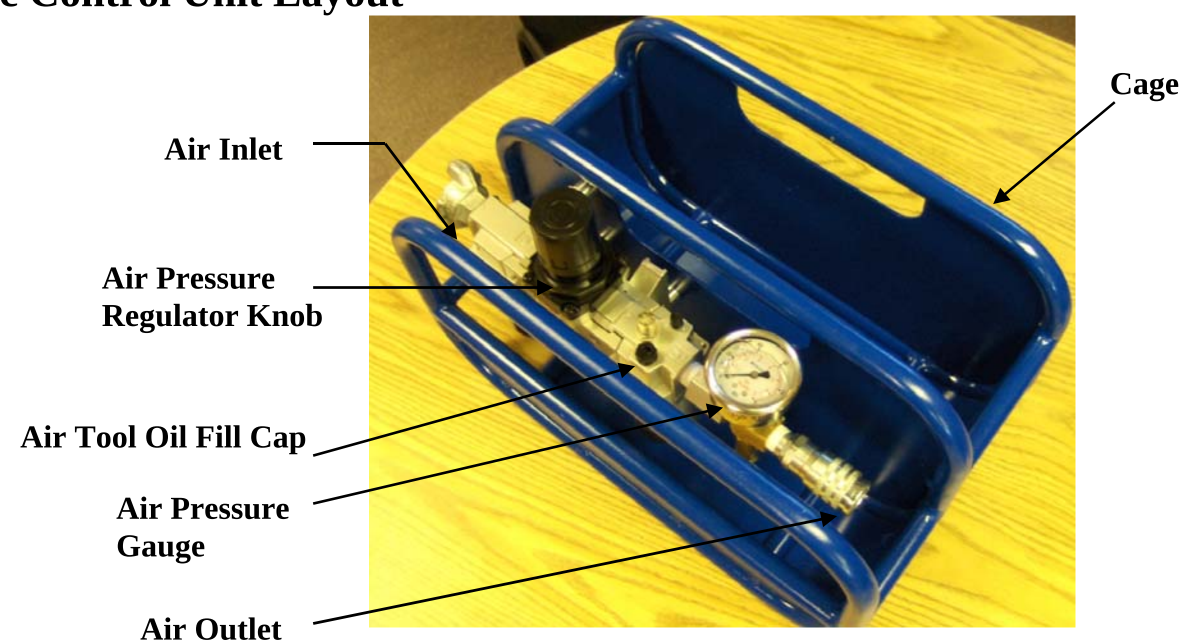
To ensure proper performance it is recommended to have Bolttech-Mannings design, manufacture and calibrate the custom reaction arm to fit your needs.

General Tool Layout

3.1 Basic Tool Configuration



3.2 Basic Control Unit Layout



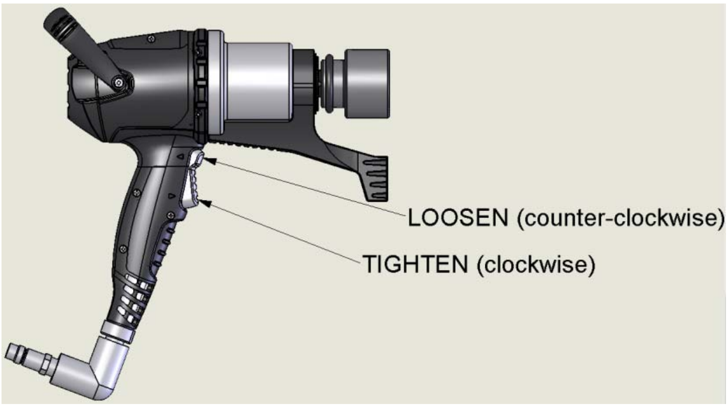
Operating Instructions

1. Connect the control unit air inlet to a ½" dia. Air supply hose.

   NOTE: An air source of at least 45 CFM @ 90 psi MAX pressure is required. Failure to provide at least 45 CFM can result in deviations from the calibration report.

2. Using the torque certification supplied, set the regulator to the desired pressure without depressing the trigger on the pneumatic wrench.

3. This model is supplied with a toggle trigger. The direction (Tighten or Loosen) is controlled by which direction the trigger is depressed. Refer to the diagram below for which direction to change the rotation of the drive.



4. The final air pressure must be set after the tool has stalled on the first bolt with the trigger depressed. The stall point is reached when there is no longer any movement of the nut and there is a constant flow of air through the motor. After setting the final air pressure, the regulator can be locked by depressing the knob until it clicks, this will ensure the pressure remains at the set point for the required torque value.

   NOTE: Refer to the certificate of calibration for the particular model and Serial number of the tool. Verify that the test date is within the previous 12 months. Exceeding maximum torque value will result in tool failure and void tool warranty.

5. For tightening, the stall point and torque is achieved by depressing the trigger (1) times after the nut has stopped rotating while the pneumatic torque tool is on the nut of the application.

Some models may be supplied with a digital readout. The digital readout is used to display the air pressure and the torque being applied to the drive of the tool.



To activate the digital readout, push the power button once. The display should turn on. At this point you will get to choose whether you want to see (PSI/ft-lbs) or (bar/N-m). To switch between the two, the button must be pushed and held for two seconds. The light will switch to the other side. To switch between PSI and ft-lbs, or bar and N-m, push the button once while the display is on.

NOTE: After pushing the power button, the display will remain ON for 10 seconds. If you push the button with-in 10 seconds it will stay on for an additional 10 seconds.

The digital readout is factory programmed during tool calibration using the USB interface.



Routine Care and Maintenance

The filter lubricator reservoir must be kept filled with air tool oil. This is accomplished by removing the air tool oil fill cap shown on page 4.

Failure to keep the reservoir filled will result in permanent damage to the Tool and void factory warranty.

The Auto-Oiler is factory pre-set. ANY adjustment will void warranty.
The oiler is factory pre-set for (1) drop of oil every 3-5 seconds while running the tool wide open at 90 psi.

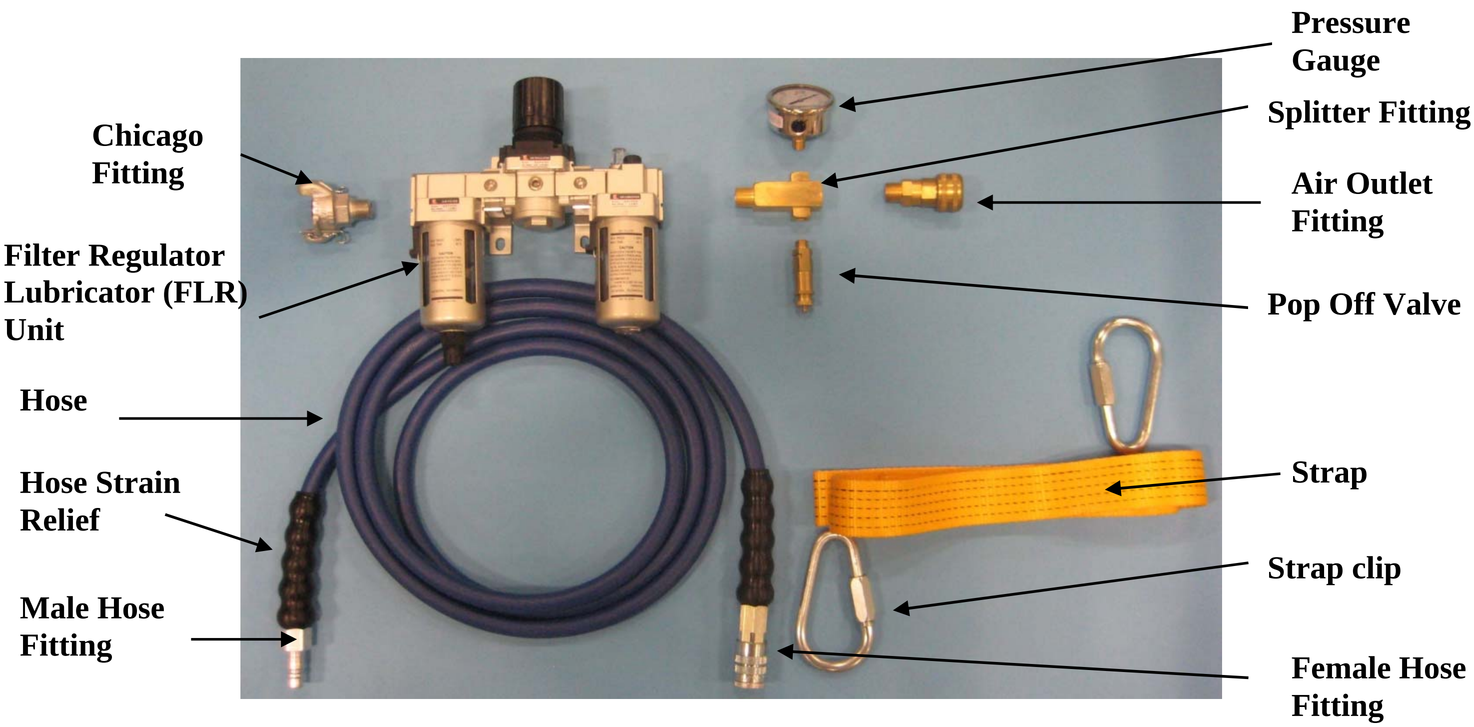
Recommended Oil: Conoco Turbine Oil 32 or Equal

Regulator filter is located after the air inlet and is 20 microns which should be replaced regularly. The first reservoir is for the collection of water removed from the inlet air. If the reservoir becomes filled with water, it can be expelled by loosening of the drain plug on the bottom of the reservoir.
Caution: Reservoir is pressurized when connected to the air line. The drain plug should be opened slowly to avoid spray.

Your tool needs to be calibrated on a yearly basis as a minimum to ensure correct torque values are being generated. Contact your Bolttech-Mannings representative to schedule a calibration service.

Note: Any disassembling of the Multiplier OR Motor Assembly other than to replace the removable drive will void warranty.

Control Unit Breakdown and Parts List



Control Unit	Part Number	Quantity
Filter Regulator Lubricator (FLR)	CU2N	1
Chicago Fitting	CU3N	1
Hose	CU4N	1
Female Hose Fitting	CU5N	1
Male Hose Fitting	CU6N	1
Spacer Fitting	CU7N	1
Pressure Gauge	160-250-NGFN	1
Splitter Fitting	CU9N	1
Air Outlet Fitting	CU10N	1
Pop-off Valve	CU11N	1
Cage	CU1N	1
Strap	CU14N	1
Strap Clip	CU15N	2
Hose Strain Relief	CU17N	2

Troubleshooting

1. Air Supply, if the control unit is not getting at least 45 CFM the tool will not produce optimal torque values. Be aware that multiple feeds on a compressor will cause a drain on its volume output.

2. Back-nut secure, if the back nut turns then you will not obtain optimal torque values. The use of a back up wrench on the back nut will solve this.

3. Chase pattern, if the nuts are not being torqued in a viable chase pattern, uneven loading will occur effecting the torque values.

4. Socket size, minimizing the length of the socket used ensures more torque is being delivered to the nut.

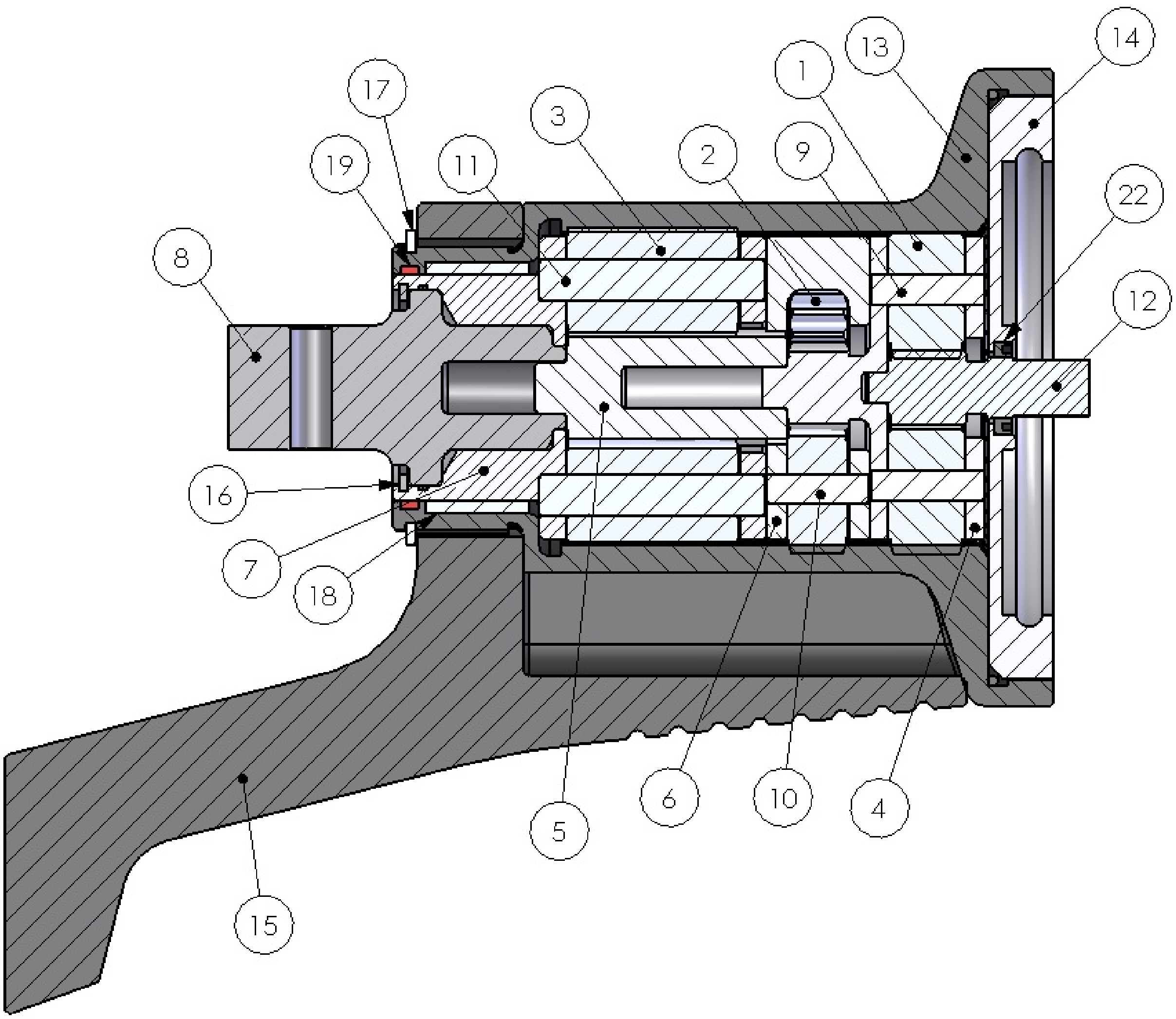
5. Nut is seated, to achieve correct preload the nut must come to a complete stop during the torque process.

6. If the water reservoir becomes full, it can affect tool operation. Periodic draining of the water reservoir may be necessary. See routine care and maintenance.

   Digital readout only:

7. If the digital readout should stop working, you may replace the batteries located under the rear housing cap. The suggested batteries are (AAA) Energizer Lithium Ion. However, any (AAA) battery will work. 2 Batteries are required. If the device still does not work, it must be repaired by a Bolttech-Mannings service technician.

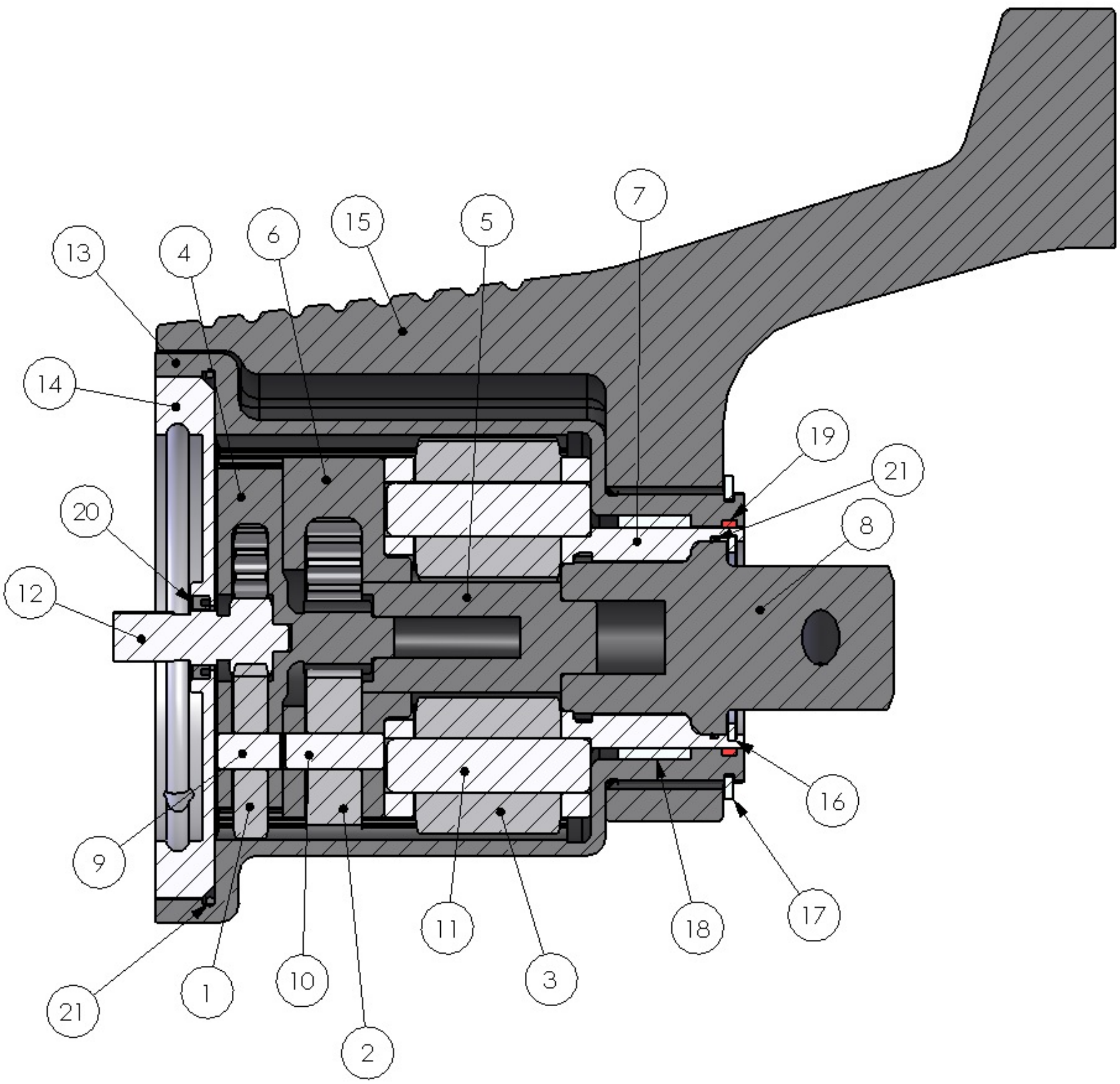
AT400



AT400

ITEM NO.	BOLTTECH-MANNINGS PART NUMBER	QTY.	DESCRIPTION
1	AT400-S1P	2	400 STAGE 1 PLANET
2	AT400-S2P	3	400 STAGE 2 PLANET
3	AT400-S3P	4	400 STAGE 3 PLANET
4	AT400-S1A	1	400 STAGE 1 ARM
5	AT400-S2IP	1	400 STAGE 2 INPUT PINION
6	AT400-S2A	1	400 STAGE 2 ARM
7	AT400-S3A	1	400 STAGE 3 ARM
8	AT400-RD	1	400 REMOVABLE DRIVE
9	AT400-S1X	2	400 STAGE 1 AXLE
10	AT400-S2X	3	400 STAGE 2 AXLE
11	AT400-S3X	4	400 STAGE 3 AXLE
12	AT400-IP	1	400 INPUT PINION
13	AT400-RG	1	400 RING GEAR
14	AT-OUTER-RACE	1	400 BEARING OUTER RACE
15	AT400-RBAR	1	400 REACTION BAR
16	WHM-118N	1	INTRNAL SNAP RING
17	WSM-175N	1	EXTERNAL SNAP RING
18	22DU10N	1	DU BEARING
19	AT400-O-RING	1	ARM SEAL (1.374" X 1.478" X 0.098")
20	AT400-DR-RING	1	REMOVABLE DRIVE SEAL
21	C-40923	1	PINION SEAL
22	LOCTITE 242	N/A	BLUE THREAD SEALER
23	G2001	N/A	DOW CORNING G2001 GREASE
24	AT400M-DECAL	1	MULTIPLIER DECAL
25	M05008D91645	1	M5 X 8 MM SET SCREW/ NYLON PATCH
26	10-32X5/16SSN	1	10-32 X 5/16" LONG SET SCREW

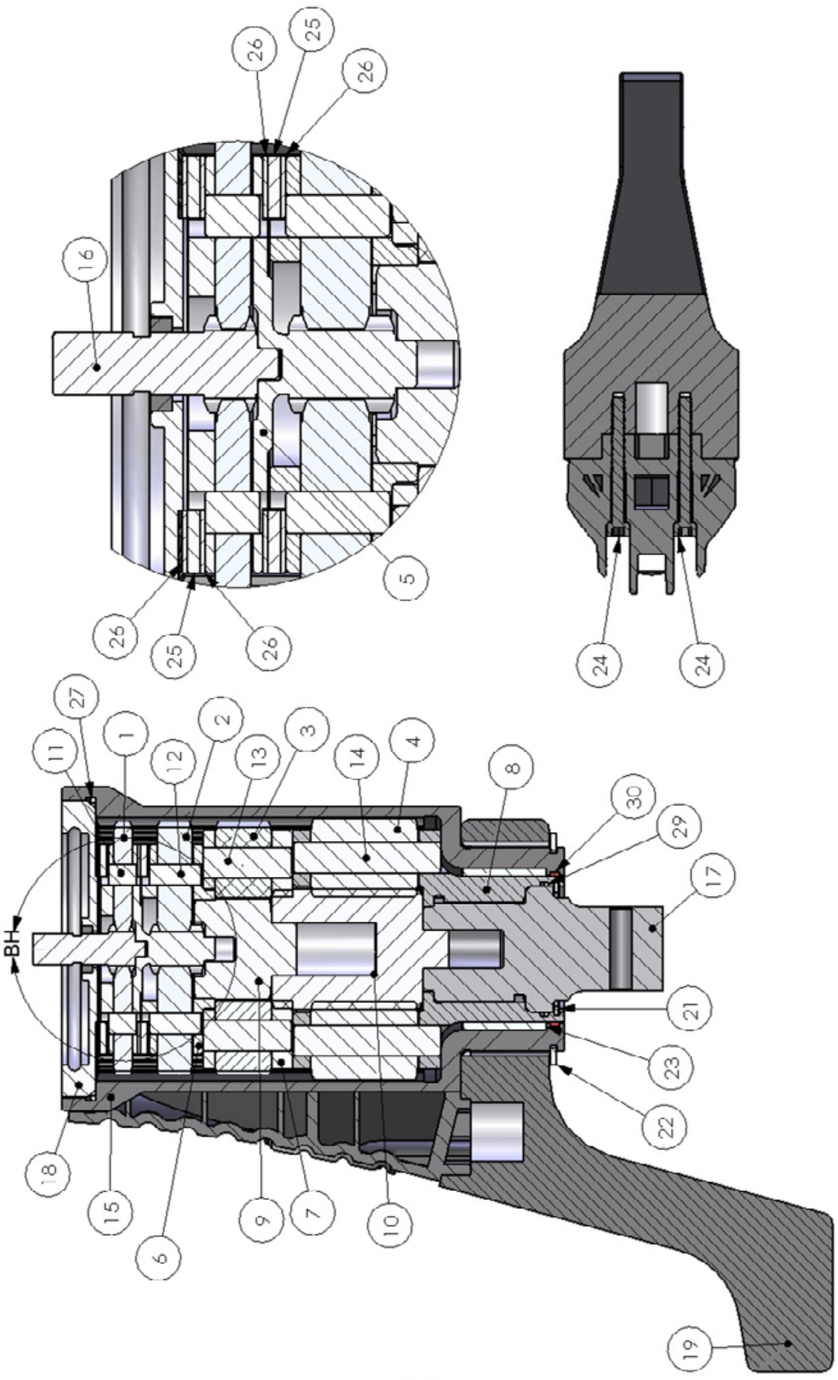
AT800



AT800

ITEM NO.	BOLTTECH-MANNINGS PART NUMBER	QTY.	DESCRIPTION
1	AT800-S1P	2	800 STAGE 1 PLANET
2	AT800-S2P	3	800 STAGE 2 PLANET
3	AT800-S3P	4	800 STAGE 3 PLANET
4	AT800-S1A	1	800 STAGE 1 ARM
5	AT800-S2IP	1	800 STAGE 2 INPUT PINION
6	AT800-S2A	1	800 STAGE 2 ARM
7	AT800-S3A	1	800 STAGE 3 ARM
8	AT800-RD	1	800 REMOVABLE DRIVE
9	AT800-S1X	2	800 STAGE 1 AXLE
10	AT800-S2X	3	800 STAGE 2 AXLE
11	AT800-S3X	4	800 STAGE 3 AXLE
12	AT800-IP	1	800 INPUT PINION
13	AT800-RG	1	800 RING GEAR
14	AT-OUTER-RACE	1	800 BEARING OUTER RACE
15	AT800-RBAR	1	800 REACTION BAR
16	WHM-131N	1	INTRNAL SNAP RING
17	WSM-200N	1	EXTERNAL SNAP RING
18	24DU08N	1	DU BEARING
19	AT800-O-RING	1	ARM SEAL (1.500" X 1.604" X 0.098")
20	C-40923	1	PINION SEAL
21	AT800-DR-RING	1	REMOVABLE DRIVE SEAL
22	LOCTITE 242	N/A	BLUE THREAD SEALER
23	G2001	N/A	DOW CORNING G2001 GREASE
24	AT800M-DECAL	1	MULTIPLIER DECAL
25	M05008D91645	1	M5 X 8 MM SET SCREW/ NYLON PATCH
26	TRA-2233N	1	1-3/8" THRUST WASHER
27	10-32X5/16SSN	1	10-32 X 5/16" LONG SET SCREW

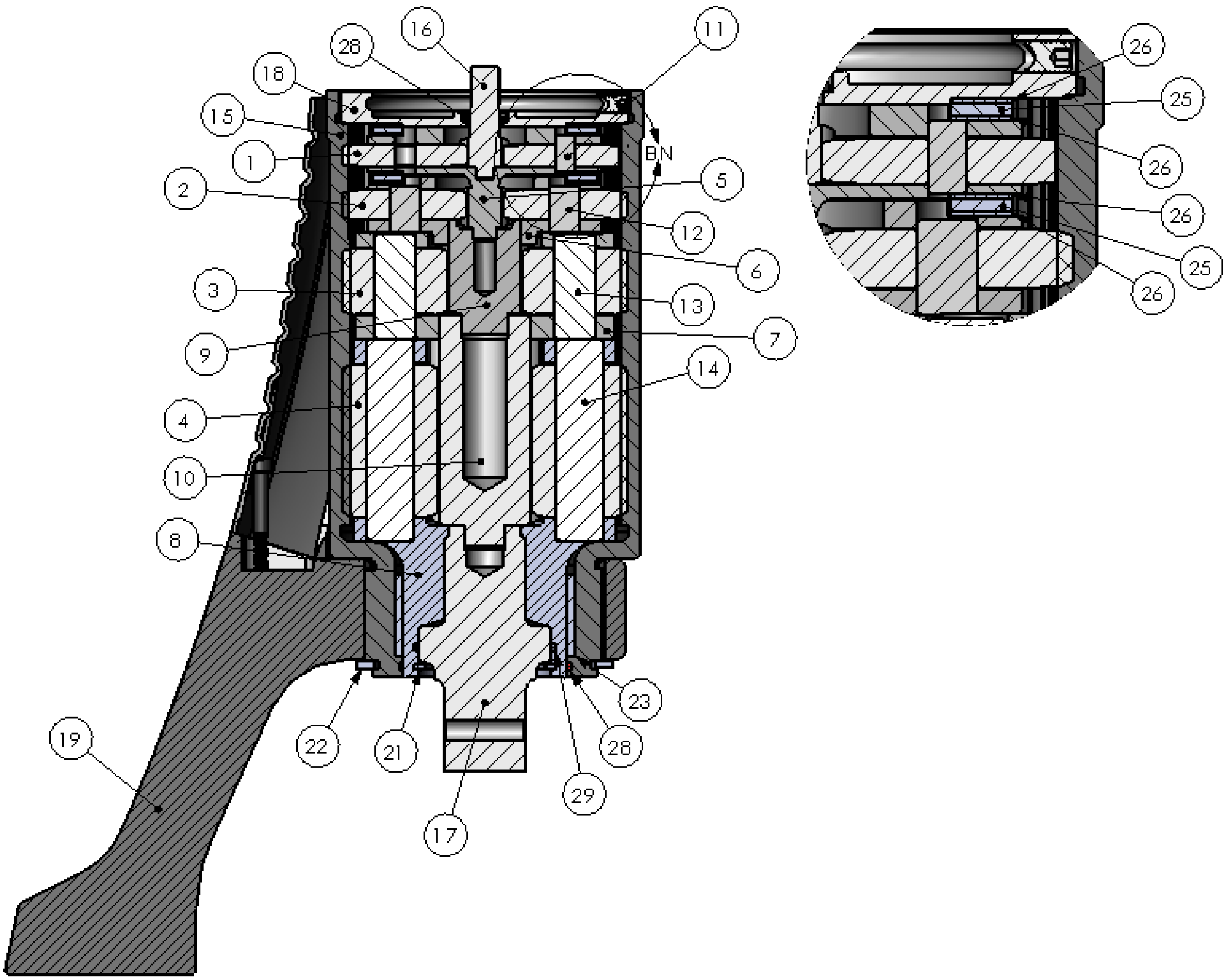
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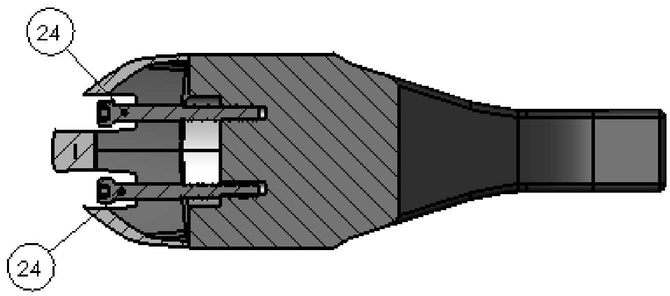

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AT1800

ITEM NO.	BOLTTECH-MANNINGS PART NUMBER	QTY.	DESCRIPTION
1	AT1800-S1P	2	1800 STAGE 1 PLANET
2	AT1800-S2P	2	1800 STAGE 2 PLANET
3	AT1800-S3P	4	1800 STAGE 3 PLANET
4	AT1800-S4P	4	1800 STAGE 4 PLANET
5	AT1800-S1A	1	1800 STAGE 1 ARM
6	AT1800-S2A	1	1800 STAGE 2 ARM
7	AT1800-S3A	1	1800 STAGE 3 ARM
8	AT1800-S4A	1	1800 STAGE 4 ARM
9	AT1800-S2IP	1	1800 STAGE 2 INPUT PINION
10	AT1800-S3IP	1	1800 STAGE 3 INPUT PINION
11	AT1800-S1X	2	1800 STAGE 1 AXLE
12	AT1800-S2X	2	1800 STAGE 2 AXLE
13	AT1800-S3X	4	1800 STAGE 3 AXLE
14	AT1800-S4X	4	1800 STAGE 4 AXLE
15	AT1800-RG	1	1800 RING GEAR
16	AT1800-IP	1	1800 INPUT PINION
17	AT1800-RD	1	1800 REMOVABLE DRIVE
18	AT1800-OR	1	1800 BEARING OUTER RACE
19	AT1800-RBAR	1	1800 REACTION BAR
20	AT1800-RBG	1	1800 REACTION BAR GRIP
21	WHM-150N	1	INTERNAL SNAP RING
22	WSM-250N	1	EXTERNAL SNAP RING
23	28DU16N	1	DU BEARING
24	91251A203	2	8-32 X 1-1/2" LONG SHCS
25	NTA-2840N	2	1-3/4" NEEDLE ROLLER BEARING
26	TRA-2840N	4	1-3/4" THRUST WASHER
27	C-40923	1	PINION SEAL
28	AT1800-DR-RING	1	REMOVABLE DRIVE SEAL
29	AT1800-O-RING	1	ARM SEAL (1.749" X 1.853" X 0.098")
30	LOCTITE 242	N/A	BLUE THREAD SEALER
31	G2001	N/A	DOW CORNING G2001 GREASE
32	AT1800M-DECAL	1	MULTIPLIER DECAL
33	M05008D91645	1	M5 X 8 MM SET SCREW/ NYLON PATCH
34	10-32X5/16SSN	1	10-32 X 5/16" LONG SET SCREW

AT3000


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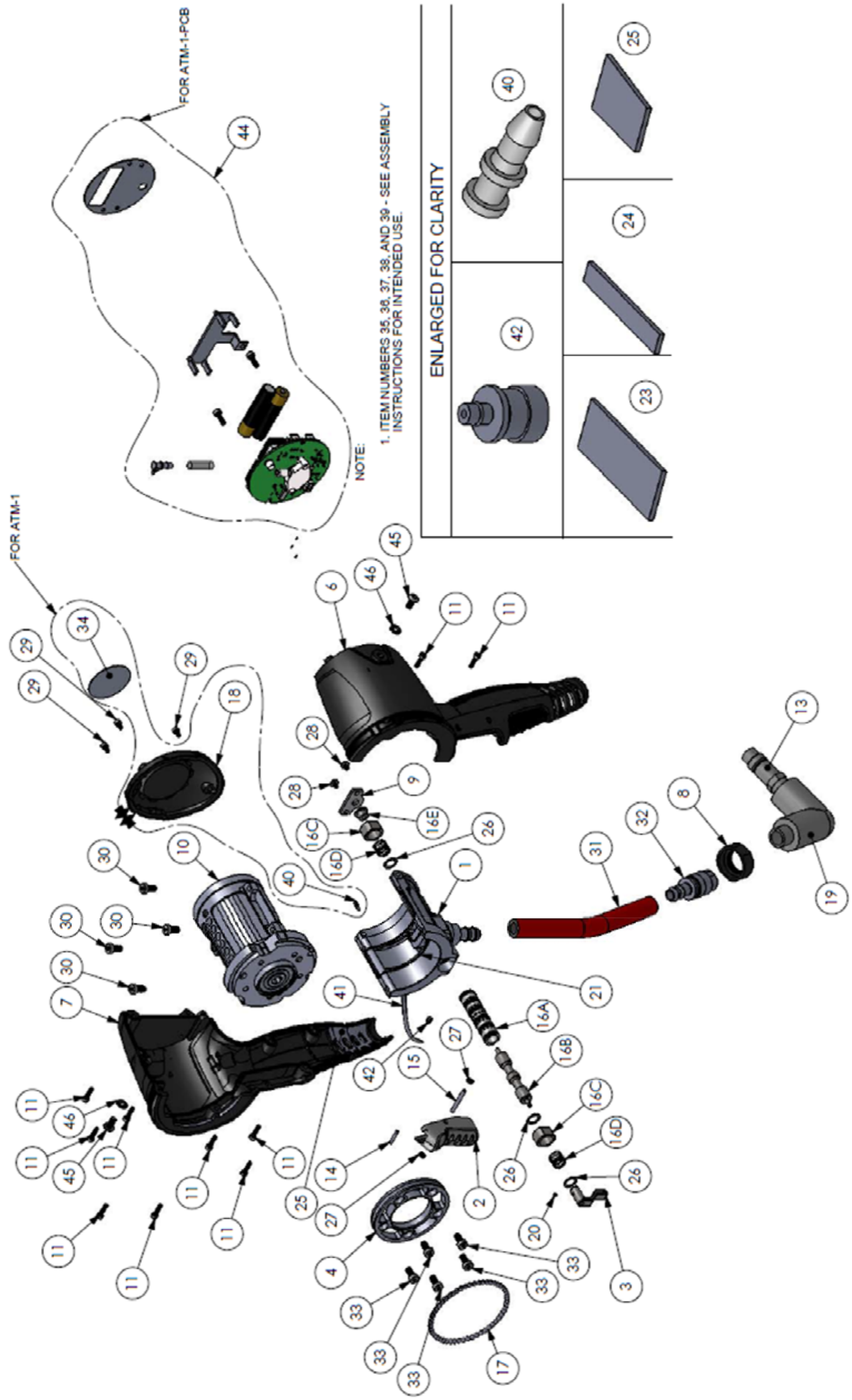

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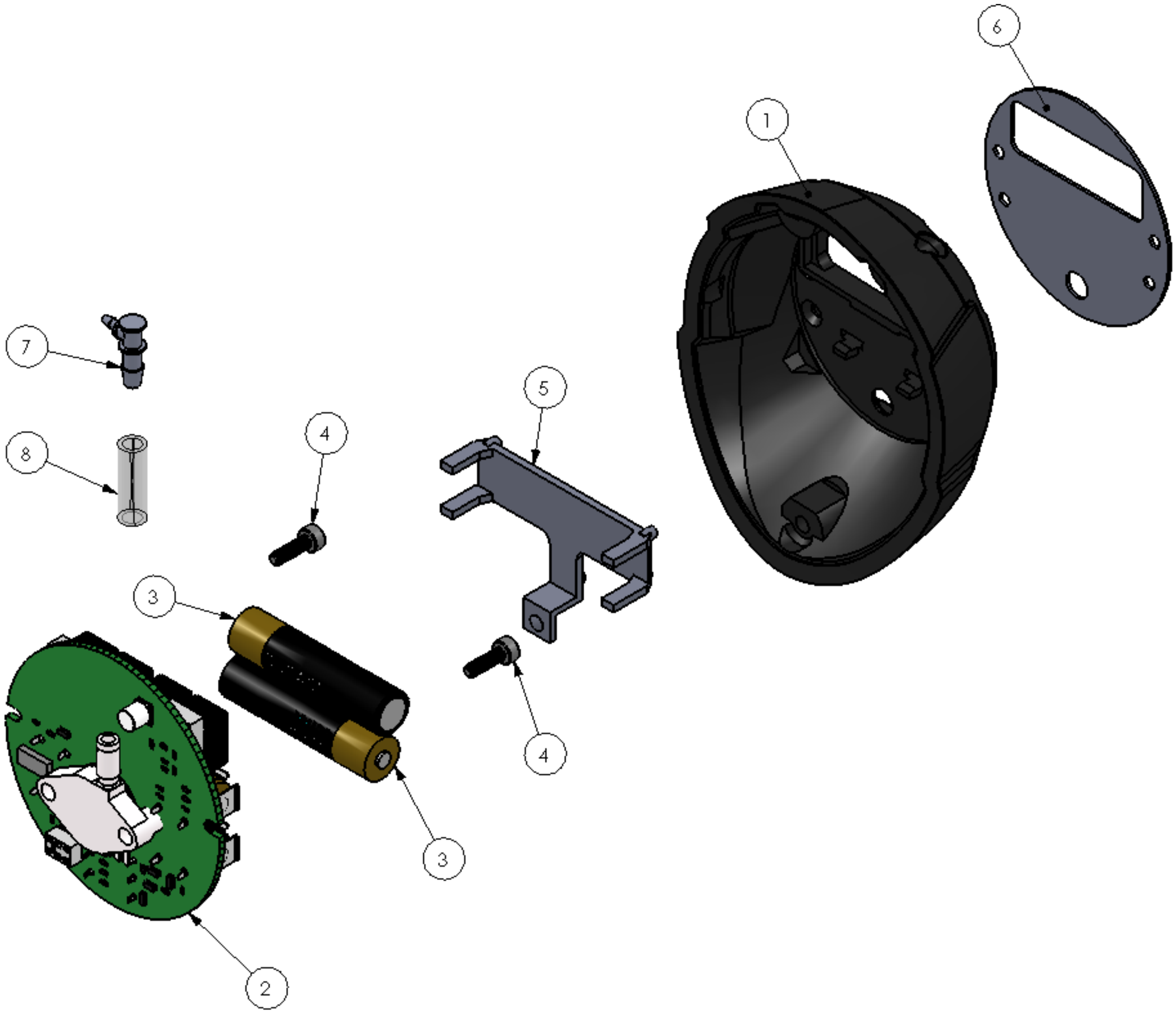
AT3000

ITEM NO.	BOLTTECH-MANNINGS PART NUMBER	QTY.	DESCRIPTION
1	AT3000-S1P	2	3000 STAGE 1 PLANET
2	AT3000-S2P	2	3000 STAGE 2 PLANET
3	AT3000-S3P	4	3000 STAGE 3 PLANET
4	AT3000-S4P	4	3000 STAGE 4 PLANET
5	AT3000-S1A	1	3000 STAGE 1 ARM
6	AT3000-S2A	1	3000 STAGE 2 ARM
7	AT3000-S3A	1	3000 STAGE 3 ARM
8	AT3000-S4A	1	3000 STAGE 4 ARM
9	AT3000-S2IP	1	3000 STAGE 2 INPUT PINION
10	AT3000-S3IP	1	3000 STAGE 3 INPUT PINION
11	AT3000-S1X	2	3000 STAGE 1 AXLE
12	AT3000-S2X	2	3000 STAGE 2 AXLE
13	AT3000-S3X	4	3000 STAGE 3 AXLE
14	AT3000-S4X	4	3000 STAGE 4 AXLE
15	AT3000-RG	1	3000 RING GEAR
16	AT3000-IP	1	3000 INPUT PINION
17	AT3000-RD	1	3000 REMOVABLE DRIVE
18	AT3000-OR	1	3000 BEARING OUTER RACE
19	AT3000-RB	1	3000 REACTION BAR
20	AT3000-RBG	1	3000 REACTION BAR GRIP
21	WHM-162N	1	INTERNAL SNAP RING
22	WSM-275N	1	EXTERNAL SNAP RING
23	32DU16N	1	DU BEARING
24	91251A187	2	8-32 X 1-5/8" LONG SHCS
25	NTA-3244N	2	1-3/4" NEEDLE ROLLER BEARING
26	TRA-3244N	4	1-3/4" THRUST WASHER
27	C-40923	1	PINION SEAL
28	AT3000-O-RING	1	ARM SEAL (1.999" X 2.051" X 0.098")
29	AT3000-DR-RING	1	REMOVABLE DRIVE SEAL
30	LOCTITE 242	N/A	BLUE THREAD SEALER
31	G2001	N/A	DOW CORNING G2001 GREASE
32	AT3000M-DECAL	1	MULTIPLIER DECAL
33	M05008D91645	1	M5 X 8 MM SET SCREW/ NYLON PATCH
34	10-32X5/16SSN	1	10-32 X 5/16" LONG SET SCREW

ITEM NO.	BOLTTECH-MANNINGS PART NUMBER	ATM-1 QTY.	ATM-1-PCB QTY.	DESCRIPTION
1	ATM-2-ASSY	1	1	WELDED PLENUM ASSEMBLY
2	ATM-4	1	1	TRIGGER
3	ATM-5	1	1	TRIGGER EXTENSION
4	AT-INNER-RACE	1	1	INNER BALL BEARING RACE
6	ATM-HSG-BLK	1	1	LEFT MOTOR HOUSING ASSEMBLY
7	ATM-HSG-BLK			RIGHT MOTOR HOUSING ASSEMBLY
8	ATM-16	1	1	THREADED HOUSING CAP
9	ATM-17	1	1	VALVE SPRING RETAINER
10	AC300	1	1	MOTOR CELL
11	91292A114	10	10	M3 X 0.50 X 12MM LONG SOCKET HEAD CAP SCREW
12	ATM-26	2	2	M5 X 0.80 X 8MM LONG SOCKET SHOULDER SCREW
13	AM28	1	1	AIR INLET FITTING
14	98381A439	1	1	3/32" DIA. X 9/16" LONG DOWEL PIN
15	90145A475	1	1	1/8" DIA. X 1.000" LONG DOWEL PIN
16	022-2012BB6-KIT	1	1	SPOOL VALVE ASSEMBLY
17	9528K12	55	55	5/32" STEEL BALL
18	ATM-19N	1	N/A	HOUSING BACK FOR NO PCB
19	MFS-01	1	1	3/8" NPT MULTI FLEX SWIVEL
20	92311A102	1	1	4-40 X 3/32" SOCKET SET SCREW
21	ATM-34	1	1	PLENUM SEAL
23	ATM-29	1	1	UPPER FRONT MUFFLER
24	ATM-30	1	1	UPPER REAR MUFFLER
25	ATM-31	2	2	LOWER MUFFLER
26	ATM-24	3	3	SPOOL VALVE WASHER
27	2418T112	2	2	BUNA-N O-RING
28	92095A188	2	2	M4 X 0.70 X 6MM BUTTON HEAD CAP SCREW
29	91292A113	3	5	M3 X 0.50 X 10MM LONG SOCKET HEAD CAP SCREW
30	92855A510	4	4	M5 X 0.80 X 10 MM LONG LOW SOCKET HEAD CAP SCREW
31	ATM-35	1	1	3/8" I.D. 300PSI MAX FLEX TUBE
32	ATM-27	1	1	FEMALE BARB FITTING
33	93070A120	5	5	M5 X 0.80 X 8MM LONG LOW SOCKET HEAD CAP SCREW
34	AT-REAR-DECALN	1	N/A	LOGO STICKER
35	LOCTITE 7471	N/A	N/A	PRIMER
36	LOCTITE 420	N/A	N/A	SUPER GLUE
37	LOCTITE 222	N/A	N/A	PINK THREAD SEALER
38	LOCTITE 242	N/A	N/A	BLUE THREAD SEALER
39	LOCTITE INSTANT GASKET	N/A	N/A	BLACK GASKET SEALANT
40	5463K731	1	N/A	1/16" I.D. HOSE BARB FITTING PLUG
41	ATM-36	1	1	1/8" O.D. X 1/16" I.D. ANTISTATIC WHITE TUBING
42	12841-BLK	1	1	1/16" I.D. HOSE FITTING
43	91732A647	11	11	M3 X 4.5 MM LONG HELICOIL
44	AT-DR	0	1	DIGITAL READ OUT KIT
45	91239A224	2	2	M5 X 0.8 X 10MM BUTTON HEAD CAP SCREW
46	93786A100	2	2	M5 PRESSURE SEALING WASHER

See Page 21 for ATM-1-PCB Parts Call-out and Parts List


FOR ATM-1-PCB
FOR ATM-1
NOTE:
1. ITEM NUMBERS 35, 36, 37, 38, AND 39 - SEE ASSEMBLY INSTRUCTIONS FOR INTENDED USE.
ENLARGED FOR CLARITY



ITEM NO.	BOLTTECH-MANNINGS PART NUMBER	QTY.	QTY.	DESCRIPTION
1	ATM-10N	N/A	1	REAR HOUSING CAP FOR PCB
2	AT-PCBN	1	1	PRINTED CIRCUIT BOARD
3	000642878	2	2	AAA LITHIUM 1.5V BATTERY
4	91292A113	2	2	M3 X 0.50 X 10MM LONG SOCKET HEAD CAP SCREW
5	ATM-18	1	1	LIGHT PIPE PLATE
6	AT-PCB-DECALN	N/A	1	DECAL
7	5463K671	1	1	1/16" TO 1/8" BARBED TUBE FITTING
8	ATM-37	1	1	1/4" O.D. X 1/8" I.D. ANTISTATIC WHITE TUBING

PCB Battery Replacement Procedure

Tool needed: 2.5mm Hex T-Handle Wrench
Recommended batteries: (2) AAA Energizer Advanced Lithium



Use T-handle to remove the (3) screws that hold the rear cover on the tool.

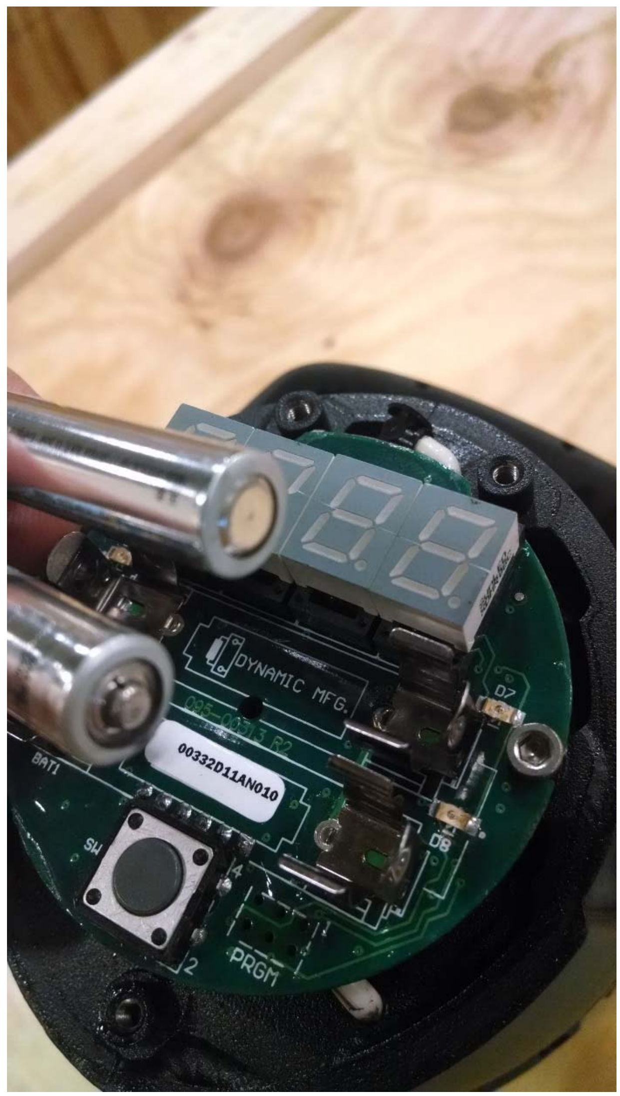
Carefully remove cover from





Carefully remove batteries with your fingers. (Do not use any conductive items to pry the batteries out)

Insert new batteries in the proper direction shown on the printed circuit board.





Place cover on the

Tighten cap screws in a cross pattern. Tighten to 17 in-lbs of torque.



Revision History

Rev No.	Date	Description of Revision	Revised Page(s)	Approved By:
11	7/25/2012	Updated to new format. Added to Routine Care and Maintenance: The first reservoir is for collection…	All	B. Gruber
12	7/31/2013	Motor Housings to a qty. of 1 as a set. Fixed plenum seal part number: ATM-32 to ATM-34.	19	Matt R.
13	11/27/2013	Updated Parts Lists to match Discovery	12,14,16,18,19	D. Mierski
14	04/01/2014	Added PCB battery replacement procedure.	All	Devon
15	2/5/2015	Implemented Handle Conversion to bolts	19-20	D. Mierski